

Growth Performance and Nutrient Digestibility of *Cirrhinus mrigala* Fingerlings Fed on Sunflower Meal Based Diet Supplemented with Phytase

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Abstract : A feeding trial was conducted with *Cirrhinus mrigala* fingerlings to study the effects of microbial phytase with graded levels (0, 500, 1000, 1500, and 2000 FTUkg-1) by sunflower meal based diet on growth performance and nutrient digestibility. The chromic oxide was added as an indigestible marker in the diets. Three replicate groups of 15 fish (Average wt 5.98 g fish-1) were fed once a day and feces were collected twice daily. The results of present study showed improved growth and feed performance of *Cirrhinus mrigala* fingerlings in response to phytase supplementation. Maximum growth performance was obtained by the fish fed on test diet-III having 1000 FTU kg-1 phytase level. Similarly, nutrient digestibility was also significantly increased ($p < 0.05$) by phytase supplementation. Digestibility coefficients for sunflower meal based diet increased 15.76%, 17.70%, and 12.70% for crude protein, crude fat and apparent gross energy as compared to the reference diet, respectively at 1000 FTU kg-1 level. Again, maximum response of nutrient digestibility was recorded at the phytase level of 1000 FTU kg-1 diet. It was concluded that the phytase supplementation to sunflower meal based diet at 1000 FTU kg-1 level is optimum to release adequate chelated nutrients for maximum growth performance of *C. mrigala* fingerlings. Our results also suggested that phytase supplementation to sunflower meal based diet can help in the development of sustainable aquaculture by reducing the feed cost and nutrient discharge through feces in the aquatic ecosystem.

Keywords : sunflower meal, *Cirrhinus mrigala*, growth, nutrient digestibility, phytase

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